S/598/62/000/007/020/040
D290/D307

AUTHORS: Kornilov, I. I., Mikheyev, V. S., Chernova, T. S. and Markovich, K. P.

TITLE: The basic properties of titanium alloys [illegible] (AT3), [illegible] (AT4), [illegible] (AT6) and [illegible] (AT8)

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Titan i yego splavy. no. 7, Moscow, 1962. Metallokhimiya i novyye splavy, 140-149

TEXT: Properties of the above alloys, which are related to the system Ti-Al-Cr-Fe-Si-B were studied; the Al content varied from 2.5 to 7.5% by weight while the total Cr, Fe, Si and B content was in the range of 1.0 - 1.8%. The alloys can be melted under works conditions in vacuum arc furnaces and are subjected to the same forging, rolling and hot working processes as all standard and experimental Ti alloys. A section of the phase diagram was constructed from the results of thermal and microstructural analyses and measurements of the temperature of the solidus. Mechani-

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S/535/62/000/007/020/049
D290/D307

The basic properties ...

cal properties were comprehensively measured and their limits found for many specimens; the properties of industrially produced alloy specimens were found to be within these limits. Temperature variations of the mechanical properties, long-run strengths, creep and elasticity moduli of the alloys were measured in the range 20 - 650°C. There are 6 figures and 8 tables.

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ACCESSION NR: AT4007026 S/2598/63/000/010/0042/0047

AUTHOR: Mikheyev, V.S.; Markovich, K.P.; Tavadze, L.F.

TITLE: Study of some alloys of the system Ti-Al-Cr-Fe-Si-B containing 3% Al

SOURCE: AN SSSR. Institut metallurgii. Titan i yego splavy*, no. 10, 1963. Issledovaniya titanovy*kh splavov, 42-47

TOPIC TAGS: titanium alloy, titanium aluminum chromium alloy, titanium aluminum chromium system, titanium complex alloy, alloy structure, phase transformation, alloy phase composition, iron containing alloy, silicon containing alloy, boron containing alloy

ABSTRACT: The authors investigated the effect of increasing concentrations (0.45-2.5%) of the alloying elements Cr, Fe and Si (1:1:1) on the ternary - solid solution of the Ti-Al-B system with 94.49-96.5% Ti and constant amounts of Al (3%) and B (0.01%). The alloys were smelted in a vacuum arc furnace with a tungsten electrode in an inert gas, cast, and the cast alloys were worked at 1000C, annealed and then quenched in air. The bars were then examined by optical methods to determine the melting diagram, by thermal analysis to determine the phase transformations in the solid state, and by metallographic analysis

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ACCESSION NR: AT4007026

to determine the microstructure (samples quenched from 1000, 800 or 600C in ice water after annealing for 2-400 hrs.). Using the N.S. Kurnakov pyrometer and samples heated for 2 hrs. at 1000, 300 hrs. at 800 and 400 hrs. at 600C, the authors constructed the polythermic cross section of the system between 400 and 1700C (see Fig. 1 in the Enclosure). This showed the presence of β, $\alpha + \beta$, α, α + excess metal, and $\alpha + \beta + \gamma$ phases. The temperature of the onset of $\alpha \rightarrow \beta$ transformation was found to be independent of the sum of Cr, Fe and Si in the alloy. The softening temperature of the alloys decreased from 1535 to 1470C as the sum of Cr, Fe and Si increased from 0.45 to 2.5%. Finally, the solubility of these three alloying elements in the α-solid solution of Ti was found to be 1% at 600 and 1.5% at 800C. Orig. art. has: 3 tables, 2 graphs and 8 photomicrographs.

ASSOCIATION: Institut metallurgii AN SSSR (Metallurgical Institute, AN SSSR)

SUBMITTED: 00 DATE ACQ: 27Dec63 ENCL: 01

SUB CODE : MM NO REF SOV: 006 OTHER: 000

Card 2/3

ACCESSION NR: AT4007026

Enclosure 01

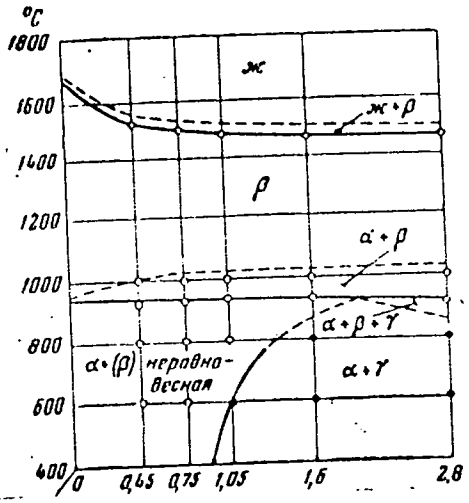

Fig. 1. Polythermic cross section of alloys of the system Ti-Al-Cr-Fe-Si-B with 3% Al and a varying total content of Cr - Fe - Si. Abscissa = wt.% Cr-Fe-Si.

α + (β) not in equilibrium

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ACCESSION NR: AT4007043 S/2598/63/000/010/0214/0217

AUTHOR: Mikheyev, V. S.; Markovich, K. P.; Fridman, Z. G.

TITLE: Heat resistance, creep and structural stability of AT-3 titanium alloy

SOURCE: AN SSSR. Institut metallurgii. Titan i yego splavy*, no. 10, 1963. Issledovaniya titanovy*kh splavov, 214-217

TOPIC TAGS: titanium alloy, AT-3 titanium alloy, titanium alloy heat resistance, titanium alloy creep, titanium alloy structural stability, titanium alloy embrittlement, titanium alloy property, alloy heat resistance, alloy creep strength

ABSTRACT: The authors investigated the heat resistance, creep and thermal stability of an AT-3 Ti alloy (2.7% Al, 0.60% Cr, 0.30% Fe, 0.35% Si and 0.01%B) smelted under industrial conditions, annealed for 30 min. at 800C and cooled in the furnace. Heat resistance was tested by determining the tensile strength at 350C for loading times of 108, 1600 and 3500 hrs., resulting in σ values of 59, 58 and 55 kg/mm^2, respectively. The results of creep tests at 350C under loads of 15-45 kg/mm^2 (see Fig. 1 in the Enclosure) indicate that the relative deformation of this alloy is relatively constant at loads between 15 and 40 kg/mm^2, with no sign of brittleness. As shown by Fig. 2 in the Enclosure, brittleness also did not develop when the alloy was aged in argon at 400C for 3000 hrs. or at 350C

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ACCESSION NR: AT4007043

for up to 5000 hrs. without a load. Subjection of the alloy to a load of 30 kg/mm^2 for 5000 hrs. at 300C or up to 6600 hrs. at 350C, as well as cyclic heating (350C) and cooling (in air or water) for as many as 700 cycles, also had no detrimental effect on the mechanical properties. Orig. art. has: 4 tables and 2 figures.

ASSOCIATION: Institut metallurgii AN SSSR (Metallurgical Institute, AN SSSR)

SUBMITTED: 00	DATE ACQ: 27Dec63	ENCL: 02
SUB CODE: MM	NO REF SOV: 002	OTHER: 000

Card 2/4

ACCESSION NR: AT4007043

Enclosure 01

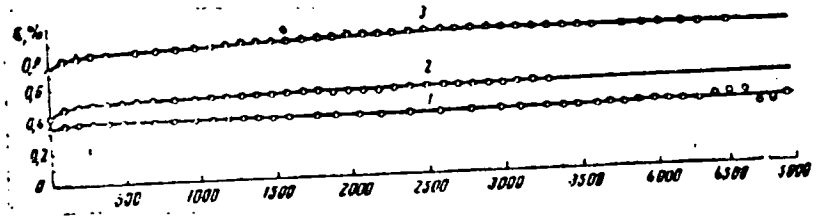

Fig. 1. Creep curves of alloy AT-3 at 350C and loads of: 1) 30, 2) 37 and 3 and 3) 45 kg/mm^2. Abscissa = time in hrs.

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ACCESSION NR: AT4007043

Enclosure 02

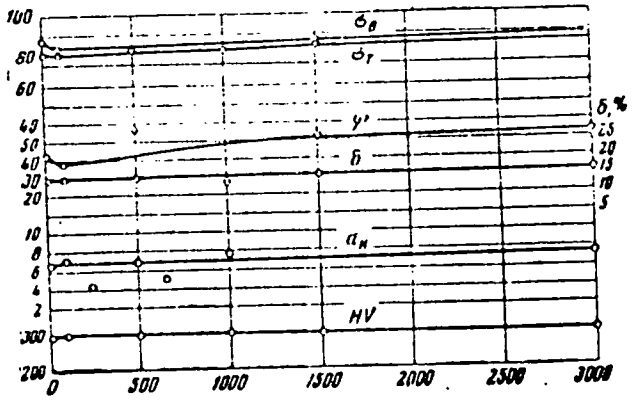

Fig. 2. Dependence of the mechanical properties of alloy AT-3 on the duration of aging at 350C. Units on the ordinate are kg/mm^2; abscissa = aging time in hrs.

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L 15671-65 EWI(m)/EWP(w)/EWA(d)/EWP(t)/EWP(b) ASD-3/AFFTC/ESD-3/IJP(c)/
ASD(m)-3 MJW/JD/MLK

ACCESSION NR: AT4048072 S/0000/64/000/000/0204/0207

AUTHOR: Markovich, K.P.; Mikheyev, V.S.; Fridman, Z.G.

TITLE: Creep of the AT3 alloy at 350C

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego splavov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1964, 204-207

TOPIC TAGS: titanium alloy, titanium alloy creep, aluminum containing alloy, titanium alloy heat resistance, titanium alloy mechanical property/alloy AT3

ABSTRACT: At present the only high strength alloys with a specific gravity of 4.4-4.6 g/cc suitable for work between 300 and 550C are alloys on a titanium base. It is therefore necessary to investigate the heat resistance of these alloys, especially during creep. The paper describes studies on the creep limit of the AT3 titanium alloy at 350C for a total deformation of 1% after 20,000 hours, as well as the changes in mechanical properties after creep testing. Previous tests showed high creep resistance at temperatures of 300 and 350C and stresses of 30 kg/mm^2 after 5,000 hours. The chemical composition of the AT3 alloy is: Ti base, 2.7% Al, 0.6% Cr, 0.30% Fe, 0.36% Fe, 0.36% Si, 0.01% B. The

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L 15671-65
ACCESSION NR: AT4048072

test samples were made of forged bars, 20 mm in diam. The testing was done on the IP-5 machine at a constant temperature of 350C and stresses of 15, 30, 33, 37, 45 and 50 kg/mm^2 for 5454, 6662, 5705, 5215, 12000 and 9300 hours. The shape of the curve after creep testing at stresses of 15 and 30 kg/mm^2 approached a straight line. The total deformation after 5000 hours increased with the creep stress from 0.18% at 15 kg/mm^2 to 0.92% at 37 kg/mm^2. For 45 and 50 kg/mm^2 the set creep begins after 400 hours and does not end before 12,000 hours, when the total deformation is 1.2%. The tests showed that the creep rate at a residual deformation of 1% after 20,000 hours is 5×10^{-5} %/hr. Consequently, the limiting stress causing a creep rate of 5×10^{-6} %/hr at 350C for AT3, containing 2.7% Al and 1.26% Cr, Fe and Si, is 42 kg/mm^2. After the creep test, the ultimate strength and plasticity were not significantly changed. The alloy did not become brittle. The authors note that the creep rate of alloy AT3 does not exceed 2×10^{-5} %/hr for a creep stress of 37 kg/mm^2, although at 45 and 50 kg/mm^2 it equals 0.5×10^{-4} and 1.6×10^{-4} %/hr. Orig. art. has: 4 figures.

ASSOCIATION: none

Card 2/3

L 15671-65

ACCESSION NR: AT4048072

SUBMITTED: 15 Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 003 OTHER: 000

Card 3/3

L 15666-65 EWT(m)/EWP(w)/EWA(d)/EPR/EWP(t)/EWP(b) Ps-4 ASD-3/AFFTC/ESD-3/IJP(c)/ASD(m)-3 MJW/JD/JG/MLK

ACCESSION NR: AT4048080 S/0000/64/000/000/0243/0248

AUTHOR: Markovich, K. P.; Mikheyev, V. S.

TITLE: Thermal stability of the AT3 alloy at 350 and 400C

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego splavov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium); trudy* soveshchaniya. Moscow, Izd-vo Nauka, 1964, 243-248

TOPIC TAGS: titanium alloy, aluminum containing alloy, titanium alloy thermal stability, titanium alloy aging, titanium alloy plasticity, titanium alloy strength/alloy AT3

ABSTRACT: Since the AT3 alloy is now being used in machinery working for prolonged periods at 350-400C, it has become necessary to test the stability of this alloy under these conditions. The chemical composition of the tested melts were as follows, in % by weight: AT3-1 (Ti-base, Al-2.7, Cr-0.60, Fe-0.30, Si-0.36, B-0.01, sum of Cr, Fe, Si-1.26) and AT3-2 (Ti-base, Al-2.8, Cr-0.79, Fe-0.44, Si-0.30, B-0.01, sum of Cr, Fe, Si-1.53). The solubility of Cr, Fe, Si in the α-solid solutions was about 75% at 500C. On the basis of previous tests it may be assumed that the alloy will become brittle after 20,000 hours of work. To test this, the alloy was aged at 350 and 400C for

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ACCESSION NR: AT4048080

10,000 hours without stress in the open air. Previous tests also indicated high stability of AT3, AT4, AT6 and AT8 alloys at 400, 450 and 500C during 100 hours. When AT3, AT6, AT8 alloys were tested for stability at 400 and 450C for 300-7,000 hours the plasticity dropped at first but was restored to the initial value after 3,000 hours. The authors used 14 x 14 mm samples from two melts consisting of TGO titanium with an ultimate strength of 39-43 kg/mm^2, KR silicon, Kh1 chromium, technical iron, A100 aluminum and chromium-boron alloying element (up to 10% B). The alloys were aged by loading them into a heated furnace without preliminary annealing. The mechanical properties were measured after 100, 500, 1000, 2000, 3000, 5000 and 10,000 hours. The test results after aging at 350 and 400C for 10,000 hours showed no changes in strength. Plasticity also remained the same. Elongation of the alloys changed from 14.3-14 to 15% for AT3-1 alloy and to 13.8% for the AT3-2 alloy. The resiliency dropped during aging. However, it remained constant at 7.5-5.5 kg·m/cm^2 for 2000-5000 hours, dropping to 3.5-3.75 kg·m/cm^2 after 10,000 hours. Investigation of the microstructure after aging showed no changes. However, prolonged aging at 400C led to hardening of the α phase grains and lowering of the plastic properties of the alloy. The paper concludes that aging of the AT3 alloy containing 2.7-2.8% Al and 1.26 or 1.53% Cr, Fe, Si at 350 and

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ACCESSION NR: AT4048080

400C for 10,000 hours does not change the phase content. The AT3 alloy does not become brittle after 10,000 hours of aging, and the ultimate strength and elongation remain unchanged. The drop in plasticity is caused by the growth of the α phase grains and by hydrogenation of the alloy during aging. Orig. art. has: 6 figures

ASSOCIATION: none

SUBMITTED: 15Jul64 ENCL: 00 SUB CODE: MM

NO REF SOV: 003 OTHER: 000

Card 3/3

ACCESSION NR: AP4029839 S/0279/64/000/002/0156/0160

AUTHOR: Mikheyev, V. S. (Moscow); Chernova, T. S. (Moscow); Myasnikova, K. P. (Moscow); Markovich, K. P. (Moscow)

TITLE: On the composition and structure of the intermetallic compound phase in alloys of the Ti-Al-Cr-Fe-Si-B 6 component system

SOURCE: AN SSSR. Izv. Metallurgiya i gornoye delo, no. 2, 196[illegible] 156-160

TOPIC TAGS: titaniumbase alloy, aluminum containing alloy, chromium containing alloy, iron containing alloy, silicon containing alloy, boron containing alloy, alloy composition, phase composition, intermetallic compound phase

ABSTRACT: To determine the nature of intermetallic phase present in six component aluminum-base alloys, the authors studied two series of alloys containing 0.5-15.0% chromium, 0.5-15.0% iron, 0.5-15.0% silicon, 0.01% boron. One series did not contain aluminum, and the other had a 3 and 6 wt.-% aluminum content. The alloys were melted from TG-00 sponge titanium, A-000 aluminum, KR-0 reduced technical iron, electrolytic chromium, and chromium-boron master alloy containing 10% of the latter. The alloys were melted in an arc vacuum furnace. The alloys were studied by means of microstructural and x-ray structural analyses after an-

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ACCESSION NR: AP4029839

nealing at temperatures of 1200, 1100, 800, and 500°C over periods of 4, 25, 200, and 500 hours, respectively. In evaluating the results the authors concluded that the phase in question is Ti_5Si_3 precipitating along the line of secondary crystallization from the beta-titanium-base solid solution. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 16Sep63 ENCL: 00 SUB CODE: MM

NO REF SOV: 004 OTHER: 004

Card 2/2

L 22991-66 EWT(m)/EWP(t)/EWA(d)/T/EWP(t) IJP(c) JD/HW/GS

ACC NR: AT6012390 SOURCE CODE: UR/0000/65/000/000/0221/0228

AUTHOR: Kornilov, I. I. (Doctor of chemical sciences, Professor); Ivanova, V. S.; Markevich, K. P.; Fridman, Z. G. 60 58 B+1

ORG: none 18 18 27

TITLE: Heat resistance of AT3 titanium alloy after standard heat treatment and after mechanothermal heat treatment

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 221-228

TOPIC TAGS: titanium, titanium alloy, aluminum containing alloy, chromium containing alloy, heat resistant alloy, alloy heat treatment, mechanothermal treatment, alloy creep resistance, alloy rupture strength / AT3 alloy

ABSTRACT: The heat resistance of AT3 titanium alloy (2.7% Al, 0.6% Cr, 0.3% Fe, 0.36% Si, 0.01% B) has been tested at 350 and 500C. After standard heat treatment (annealing at 880C followed by air cooling) the structure of the alloy consisted of the α-phase and traces of the β-phase. The creep rate at 350C changed relatively little with a

Card 1/2 UDC: 669.295.001.5

L 22991-66

ACC NR: AT6012394

change in stress. The 10,000 hr rupture strength was 56 kg/mm^2, i.e., about 90% of the tensile strength. Prolonged service at 350C affects neither the structure nor the properties of the alloy. For instance, the elongation dropped from the initial 15% to 13% after 5454 and 5215 hr tests under a respective stress of 15 and 37 kg/mm^2. The high rupture strength, structural stability, high oxidation resistance, and high ductility make AT3 alloy a promising structural material for prolonged operation at 350—450C. At 500C, however, the alloy softens rapidly. The 500 hr rupture strength was only 22 kg/mm^2. Microscopic examination showed that the softening of AT3 alloy at 500C was due to precipitation of Ti_5Si_3 compound (the γ-phase) from the solid solution along the active slip planes. Four cycles of mechanothermal treatment (24 hr at 500C under a stress of 12 kg/mm^2 followed by 24 hr without stress at the same temperature) prolonged the second creep stage at 500C by nearly five times and more than doubled the rupture life. In alloy subjected to MTT and subsequent creep tests, the precipitated γ-phase particles were more uniformly distributed over the grain volume. Orig. art. has: 6 figures and 2 tables. [MS]

SUB CODE: 11, 13/ SUBM DATE: 02Dec65/ ORIG REF: 006/ OTH REF: 002
ATD PRESS: 4238

Card 2/2

S/081/62/000/001/036/067
B102/B101

AUTHORS: Markovich, L. A., Zhuk, N. P.

TITLE: Effect of halide ions on the corrosive behavior of 1Kh16N9T (Kh16N9T) steel in etching with sulfuric acid

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 1, 1962, 312-313, abstract 1I241 (Sb. "Korroziya i zashchita konstrukts. metallich. materialov". M., Mashgiz, 1961, 93-107)

TEXT: The authors studied the effect of Cl ions on the corrosion and electrochemistry of steel 1Kh18 9T (1Kh18N9T) when being etched in a 18% solution of H_2SO_4 at 70°C. It was shown that corrosion of this steel occurs with combined cathode and anode processes, and that the presence of NaCl reduces the rate of both processes. A maximum protective effect was observed when up to 5 g/l NaCl were added to the solution. The corrosion rate increases with increasing NaCl concentration >70 g/l. Elevated temperature improves the protective effect when Cl ions are added. The chemosorptive mechanism of the protective action of the halide ions is explained for the above conditions. [Abstracter's note: Complete translation.]

Card 1/1

S/081/61/000/022/[illegible]
B110/B101

AUTHOR: Titov, V. A., Markovich, L. A., Prosvirin, A. T.

TITLE: Study of corrosion resistance of metals and alloys under conditions of hexachlorane production

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 256, abstract 22I169 (Sb. "Korroziya i zashchita konstrukts. metallich. materialov". M., Mashgiz, 1961, 254 - 259)

TEXT: A study of the corrosion resistance (CR) of nonferrous and black metals and alloys in media used for hexachlorane production showed that the Ni - Mo alloy type ЭИ461 (EI461), Pb and Cr-Ni steels types 1Х18Н9Т (1Kh18N9T) and ЭИ654 (EI654) were unstable under the conditions mentioned. It was found that Ta had absolute CR and therefore can be used as plating material. CR of Ti in the gaseous phase was satisfactory under conditions of benzene distillation $\leq 120^{\circ}$C. [Abstracter's note: Complete translation.]

Card 1/1

MARKOVICH, L.M.; MUCHNIK, V.M.

Structure of thunder showers based on data of radar intensity distribution in connection with height. Ukr. fiz. zhur. 5 no.2: 259-269 Mr-Ap '60. (MIRA 13:12)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.
(Radar meteorology) (Thunderstorms)

MARKOVICH, L.P.

Taking into account certain mining engineering factors in testing the strength of waste rock. Fiz.-tekh. probl. razrab. pol. iskop. no.5:84-90 '65. (MIRA 19:1)

1. Gosudarstvennyy gornokhimicheskiy kombinat, gorod Novyy Rozhdol, L'vovskaya oblast'.

MARKOVICH, M.; KALOMFIRESKU, A.; VOL'SKIY, V.

Studies on first vaccination against poliomyelitis in Bucharest; epidemiological effectiveness of Lepin's vaccine. Zhur.mikrobiol. epid.i immun. 30 no.10:24-27 O '59. (MIRA 13:2)

1. Iz Instituta gigiyeny i sanitarno-epidemiologicheskoy stantsii g. Bukharesta (Rumyniya).
(POLIOMYELITIS prev. & control.)
(VACCINATION)

MARKOVICH, M.; BUYMOVICH, Ye.

Study of poliomyelitis in children's collectives; clinical epidemiological, virusological, and immunological data. Vop. virus. 7 no.2: 240 Mr-Ap '62. (MIRA 15:5)

1. Institut gigiyeny i Institut Kantakuzino, Bukharest, Rumyniya.
(POLIOMYELITIS--PREVENTION)

27070
S/080/61/034/003/012/[illegible]
A057/A129

15.9203

AUTHORS: Legotski, M., Markovich, M., Penchek, I., Penchek, S.

TITLE: Synthesis and polymerization of 3,3'-bis (chloromethyl)oxacyc[illegible]-butane

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 3, 1961, 640 - 644

TEXT: In order to develop the most efficient conditions for the synthesis of the monomer 3,3'-bis(chloromethyl) oxacyclobutane and for its polymerization, it was shown that by polymerization in liquid sulfur dioxide a high-molecular polymer ($[\eta] > 1.2$) is obtained even at - 10°C (boiling point of SO_2) when BF_3 is used as catalyst. The polymer can be easily purified, contrary to products obtained in organic solvents. The monomer was synthesized by a procedure described also by R. W. Cairnes and V. R. Grassie (Ref. 2: Ind. Eng. Plast., [illegible] 9, 26, 1959) as follows: Pentaerythrite tetraacetate was first synthesized by Orthner's method (Ref. 7: Ann. 484, 131 - 154, 1930) using acetic anhydride, or by a method developed by the present authors using acetic acid and pentaerythrite in presence of a cation exchange resin (3 weight %, MK_3 (MK_3) type). The obtained tetraacetate was then converted to the monoacetate of pentaerythrite trichloro-

Card 1/3

Synthesis and polymerization of .....

hydrine by adding 3 weight % of $AlCl_3$ (or $ZnCl_2$) and passing gaseous HCl at a temperature of 195°C. After rectification the product was used to synthesize pentaerythrite trichlorohydrine by mixing with ethanol and β-toluene sulfonic acid, boiling and subsequent distillation. The residue, i.e., trichlorohydrine, was then converted to the monomer 3,3'-bis(chloromethyl)oxacyclobutane with NaOH (or KOH) by methods described by M.M. Koton et al. (Ref. 1: ZhPKh, 33, 1, 184, 1960). Some details concerning synthesis of the monomer were already given by the present authors at the Annual Scientific Conference on Polymers of the Polish Academy of Sciences in Lodz in 1959 (Ref. 3: Tworzywa-Guma-Lakiery, 5, 69, 1960). Immediately before polymerization experiments in a laboratory assembly, the monomer was vacuum-distilled (0.1 torr, 32 - 33°C) and a product obtained with a refraction index of n_D^{20} 1.48582 - 1.48588. Gaseous BF_3 was produced by evaporation of an anisole complex and it was introduced into the monomer which was dissolved in liquid SO_2 (thoroughly dried before use) using nitrogen gas as carrier. The general mechanism in the change of the molecular weight of the polymer during polycondensation in liquid SO_2 corresponds (see Table) to values obtained by J. Rose (Ref. 4: J. Chem. Soc., 542 (1956), A. Farthing (Ref. 5: J. Chem. Soc., 3648, 1955) and M. M. Koton et al. (Ref. 1). The obtained product is a rose

Card 2/3

Synthesis and polymerization of ....

powder which is easily converted to further purification. Thereis 1 figure, 1 table and 8 references: 2 Soviet-bloc and 6 non-Soviet-bloc.

ASSOCIATION: Institut plasticheskikh mass. Warszawa (Institute for Plastics, Warsaw)

SUBMITTED: September 9, 1960

Table: Effect of temperature on the polymerization rate (yield after 4 hours)and molecular weight of the polymer. Concentration of the monomer M = 1.88 mole/l, concentration of the catalyst BF_3 = 0.06 mole /l,Legend: (1) temperature of polymerization (°C), (2) yield (%), (3) characteristical viscosity (for 1% solution of the polymer in cyclohexanone at 40°C) | sp/c.

Температура полимеризации (°C) (1)	Выход (%) (2)	Характеристическая вязкость η_{sp}/c ** (3)
—25	26.0	2.40
—20	36.0	2.00
—15	49.0	1.55
—10	73.0	1.40

Card 3/3

KAPUSTIN, Ye.I., kand.ekon.nauk; LAVROV, V.V.; RYUMIN, S.M.; KONSTANTINOV, Yu.A.; PRAVDIN, D.I., kand.ekon.nauk; KIRILLOVA, K.I.; RIMASHEVSKAYA, N.M.; ANTROPOV, B.F.; RYABKOV, F.S.; POPOV, G.A.; DEMYANOVA, V.A.; SMOLYAR, I.M.; ACHARKAN, V.A., kand. yurid.nauk; BROMER, D.L.; SHEPTUN, Ye.V.; KHYAZHEV, V.G.; ALESHINA, F.Yu., kand. ekon. nauk; KUZNETSOVA, N.P.; MARKOVICH, M.B.; BIBIK, L.F.; BUDARINA, V., red.; GRIGOR'YEVA, I., mladshiy red.; CHEPELEVA, O., tekhn. red.

[Public consumption funds and improving the welfare of the people in the U.S.S.R.]Obshchestvennye fondy i rost blagosostoianiia naroda v SSSR. Moskva, Sotsekgiz, 1962. 222 p. (MIRA 15:6)
(Cost and standard of living)

MARKOVICH, M.B. [deceased].

Foreign synthetic detergents. Proizv. smaz. mat. no.3:26-32 '57.
(Cleaning compounds) (MIRA 10:12)

USSR/Electronics - Television Competitions Mar [illegible]

"Results of the Competition on Mass Television Receivers"

Radio, No 3, pp 43-45

Second prizes of [illegible], 6 rubles were awarded to G. A. Vil'kov for the all-wave "TV-3" receiver and to V. B. Ivanov and I. L. Tyutin for the 1st-class "L[illegible]" receiver. An incentive award of [illegible], 00 rubles was awarded to I. G. Sharlov for his "Pionier" and one [illegible], 00 rubles was awarded to V. A. Khlebnikov, L. A. Karavaikin, D. M. Murin, and D. S. Kheyfets for their 1A-class "Leningrad". Khlebnikov and Kheyfets were designers of the commercial "Leningrad T-2" receiver. On the whole, the exhibition was adjudged unsuccessful.

PA 25[illegible]61

MARKOVICH M. G.

А. В. [illegible]

Анализ [illegible] апертурной [illegible]

9 июня

(с 18 до 22 часов)

[illegible]
[illegible]

Генератор импульсов типа квадратичный синус

[illegible]
[illegible]
[illegible]

Вопросы записи с экранов электронно-лучевых трубок методами фотографии и электрофотографии

[illegible]
[illegible]

[illegible]

[illegible]
[illegible]
[illegible]

Применение ферритов с ППГ в [illegible] в схеме телевизионного [illegible]

10 июня

(с 10 до 16 часов)

[illegible]
[illegible]

Влияние шумов на разрешающую способность в [illegible] телевидении

М. В. Антипин

Определение продольной разрешающей способности передающих телевизионных трубок по двум точкам апертурной характеристики

М. Г. Маркович,
[illegible]

Четырехэлементные магнитные линзы для телевизионных трубок

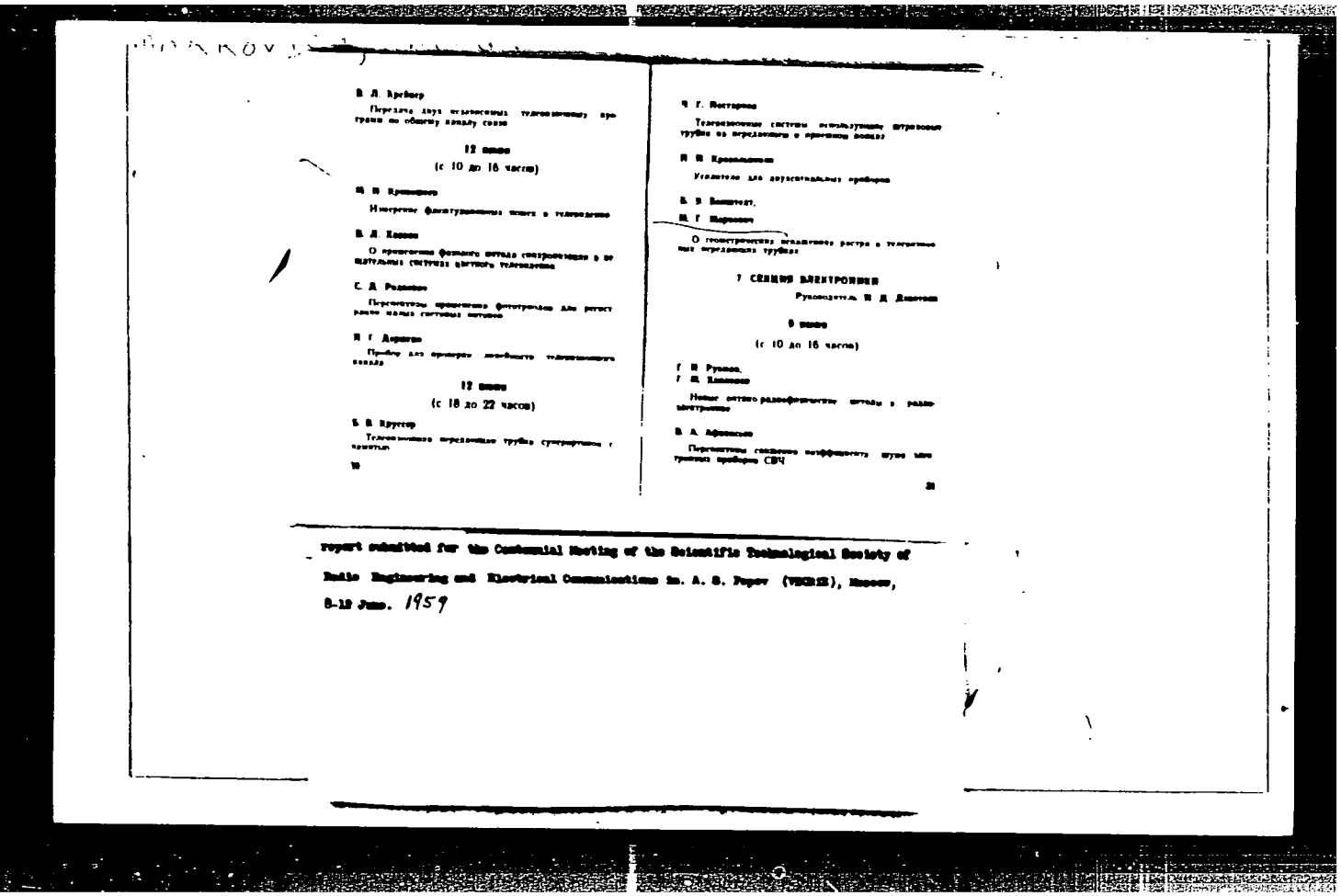
[illegible]
[illegible]
[illegible]
[illegible]

Контроль качественных показателей телевизионного тракта во время работы телецентра

10 июня

(с 18 до 22 часов)

Report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORiE), Moscow, 8-12 June. 1959



Report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNIRIS), Moscow, 8-12 June. 1959

84563

9.3140

S/057/60/030/011/008/009
B006/B054

AUTHORS: Markovich, M. G. and Tsukkerman, I. I.

TITLE: Spherical Aberration of Magnetic Four-pole Lenses

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 11, pp. 1362-1368

TEXT: First, the authors discuss the applications of magnetic four-pole lenses and their aberrations. It was the object of the present work to study the aberration occurring in the focusing of a broad beam with a short magnetic four-pole lens. The beam is assumed to originate from some point on the axis. In one direction, the aberration leads to a broadening of the line focus, in the other to a change in its length. These two forms are called transverse and longitudinal spherical aberrations in the present paper. While the spherical aberration of lenses of rotational symmetry has only one sign, the sign of spherical aberration may change in magnetic four-pole lenses. Making use of this fact, magnetic four-pole lenses may be employed to correct spherical aberrations. The cross section of the present four-pole is shown in Fig. 1. When the magnetic field is

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8L563

Spherical Aberration of Magnetic Four-pole Lenses

S/057/60/030/011/008/009
B006/B054

symmetrical with respect to two planes which form an angle of 45° with the coordinate planes on either side, the four-pole lens is called symmetrical; in the other case, it is called asymmetrical. Spherical aberration is calculated by the method of trajectories which is described in the first part of the paper . Part 2 deals with transverse, and Part 3 with longitudinal spherical aberration. It is shown that the aberration of a "symmetrical" four-pole lens has always the same sign as lenses of rotational symmetry. The conditions for the change in sign of spherical aberrations of "asymmetrical" four-pole lenses are discussed. In the last part, the authors discuss the experimental verification of the change in sign of spherical aberration. A cathode-ray tube having a toroidal four-pole lens with a tapped coil (Fig. 3) and a diaphragm with two pairs of narrow slits are used for this purpose. The measurements are described, and some values are compiled in a table. There are 6 figures, 1 table, and 3 references: 2 Soviet and 1 US

SUBMITTED: April 7, 1960

Card 2/3

84563

S/057/60/030/011/008/009
B006/B054

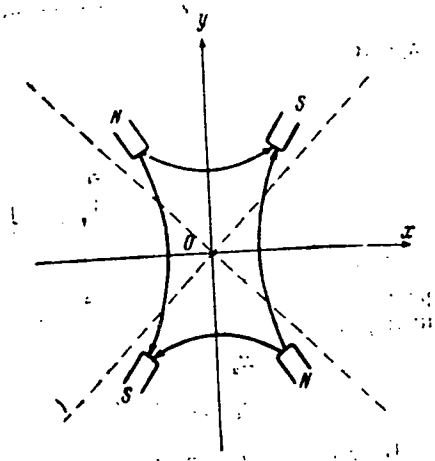

Рис. 1.

Card 3/3

MARKOVICH, M. G.

Dissertation defended for the degree of Candidate of Physicomathematical Sciences at the Technical Physics Institute imeni A. F. Ioffe in 1962:

"Investigation of Quadripolar Magnetic Lenses for Electron-Bean Tubes."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

25813
S/142/60/003/006/003/016
E140/E135

9.4310

AUTHOR: Markovich, M.I.

TITLE: The effects of the passive base region on transistor pulse operation

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1960, Vol.3, No.6, pp. 563-570

TEXT: It is shown that in saturation the minority carrier charge in the passive base region can exceed by many times the charge in the active region. One of the consequences of this is that the time constant of the RC network in the base circuit should be equal to or greater than a value given by the time for discharging the passive base region. A simple method for measuring the lifetime in the passive base region is then proposed, which it is claimed is more exact than that of Rzhevskiy (Ref.2: K.S. Rzhevskiy, V.I. Shveykin. Radiotekhnika i elektronika 1959, Vol.4, No.7, 1164), where errors up to 50% are said to be possible. This method was presented at the session of Sektsiya poluprovodnikovykh priborov (Section of Semiconductor Devices) of NTORiE imeni A.S. Popov (Moscow, 1959). It consists essentially in

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The effects of the passive base region...

varying the time constant in the base circuit by means of a variable capacitor, and observing the collector pulse waveform in the presence of high saturation ($n \geq 3$). Comparison of calculated and measured values for given transistors agree satisfactorily. Three appendices deal with the estimate of certain quantities occurring in the work, to justify the given approximation. Acknowledgments are expressed to V.G. Marants and N.M. Royzin for advice. There are 6 figures, 1 table and 2 Soviet references.

ASSOCIATION: NII Gos. komiteta Soveta Ministrov SSSR po radioelektronike
(NII of the State Committee of the Council of Ministers of the USSR for Electronics)

SUBMITTED: June 25, 1960

Card 2/2

S/1[illegible]/003/012/016
E036/E335

9.4310 (1139, 1150, 1159)

AUTHORS: Royzin, N.M. and Markovich, M.I.

TITLE: Measurement of the thermal resistance of power transistors

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v.4, n.3, 1961, pp. 341 - 343

TEXT: In determining the thermal resistance R_T of a transistor the formula:

$$R_T = \frac{\Theta_b - \Theta_c}{P} \qquad (1)$$

is used, where Θ_b is the base-region temperature, Θ_c the transistor case temperature, and P the power dissipation. Of these parameters, Θ_c and P are easily measured. A method of determining Θ_b by measuring the emitter-base

Card 1/4

Measurement of ....

voltage (V_{eb}) at constant emitter current is given in this short note. The method is particularly applicable to diffused base transistors in which I_{co} is not available as a measure of base temperature. It is noted that in silicon transistors it is necessary to take account of the emitter junction dissipation in addition to the power dissipated in the collector. The measurement is carried out by first dissipating power in the transistor to heat the base region up to a temperature which is then found by measuring the temperature-sensitive parameters whilst the power is no longer being dissipated. Calculation and experiment indicate that the thermal relaxation time is several milliseconds and thus the base-temperature determination must be effected in an order less than this to avoid serious errors. The power dissipation is effected by applying a square pulse of 5 msec duration to the emitter. The interval between successive pulses was 0.5 milliseconds.

Card 2/4

Measurement of ....

The voltage amplitude of the input pulse may be varied up to 4 V, the output resistance of the pulse-generator being 5 Ω. During the interval between pulses a current of 10 mA flows through the emitter and the base-emitter voltage is measured by a peak voltmeter. Circuit details are given. A correction is made for the finite voltage drop across the semiconductor diode detector in the voltmeter circuit which occurs during the pulse. In setting up the measuring apparatus an allowance is also made for the variation of the "built-in" potential with temperature, which is found by measurement. In an additional note the thermal relaxation time is calculated approximately for a silicon transistor. In solving the heat-diffusion equation, it is assumed that: heat passes from the base through the collector body only, which is assumed uniform and had the physical characteristics of silicon; the temperature of the transistor case is constant. The first terms of a series solution, obtained by operational methods, for the rise in temperature of the collector junction are quoted. Inserting typical values gives a time constant of 0.73 msec, which is

Measurement of ....

considered in reasonable agreement with experimental values of several milliseconds for silicon diffused devices. There are 2 figures and 1 English-language reference, as follows: Ref. 1 - Gates Johnson. The measurement of thermal resistor semiconductor products. 1959, July, 21.

ASSOCIATION: NII pri Goskomitete Soveta Ministrov SSSR po radioelektronike (NII at the State Committee of the Council of Ministers of USSR on Radioelectronics)

SUBMITTED: July 4, 1960 (initially)
October 14, 1960 (after revision)

Card 4/4

S/185/60/005/002/014/022
D274/D304

AUTHORS: Markovych, M.L. and Muchnyk, V.M.

TITLE: Structure of thunderstorm showers from data on height distribution of radioecho intensity

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 5, no. 2, 1960, 259-267

TEXT: Radar was used for studying the vertical structure of thunderstorm showers. Direct measurements of radio-echo intensity showed that the reflection at the center of the thunderstorm is much greater than at ground level. The instrument used had circular scanning and the receiver was calibrated in such a way that the images of the horizontal cross sections of the thunderstorm corresponded to the sensitivity values of the indicator. The thunderstorms observed were at a distance of 35 km from the radar set, and at various altitudes which were determined by the antenna angle. The duration of a single altitude-observation was 40 sec. At each altitude a series of pictures was taken at various sensitivity graduations of the re-

Card 1/4

Structure of thunderstorm showers...

ceiver. On the basis of these series of pictures, vertical cross sections of the thunderstorms were constructed in accordance with the values of reflectivity in the plane perpendicular to the line connecting the radar device and the thunderstorm center. A figure is given with observed data of a thunderstorm in August, 1958. These data show that, for the central part of thunderstorms, the reflectivity decreases by a factor of 3-5 with height (from maximum to ground level), whereas in peripheral areas the change is not great. This is in agreement with earlier results. E.M. Sal'man (Ref. 2: Radiolokatsionnoye issledovanie struktury livney i groz, Trudy GTO, no. 72, 1957). It is of interest to ascertain the reasons for such a sharp change of reflectivity in the center of thunderstorms, and this all the more so, as there are no direct means of observations of these parts of thunderstorms. The physical processes which could account for the sharp change are: Evaporation and splitting of drops, accumulation of drops at a certain altitude due to ascending currents, melting of big ice-particles (hail, etc). It was established by calculations that evaporation of drops cannot be a reason for the observed change in reflectivity; the splitting of drops may have some

Card 2/4

Structure of thunderstorm showers...

effect, but it cannot be the only factor. The ascending currents cannot be a reason for the observed change in reflectivity. The authors reach the conclusion (on the basis of computations) that the melting ice particles are the main reason for the observed reflectivity distribution. This is in agreement with the results reached by other authors from different considerations. It is noted that the most probable reason for thunderstorm electricity consists in the ice-particles being electrified in their fall. There are 5 figures and 10 references: 6 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: B. Langille and K. Gunn, Quantitative analysis of vertical structure in precipitation, Journ. Meteor., 5, N 6, 1948; H. Byers, Thunderstorm electricity, Chicago, 1953; J. Laws and D. Parsons, The relation of raindrop size to intensity. Trans. Amer. Geoph. Union, p.III, 1943; E. Workman and S. Reynolds, Electrical phenomena occurring during the freezing of dilute aqueous solutions and their possible relationship to thunderstorm electricity. Phys. Rev., 78, 3, 1950.

Card 3/4

S/185/60/005/002/014/022
D274/D304

Structure of thunderstorm showers...

ASSOCIATION: Ukrayins'kyy naukovo-doslidnyy gidrometeorologichnyy instytut (Ukrainian Hydro-Meteorological Research Institute)

SUBMITTED: July 6, 1959

Card 4/4

S/169/62/000/002/041/072
D228/D301

3.5000

AUTHORS: Markovich, M. L., Muchnik, V. M. and Sirotyuk, L. V.

TITLE: Some data on the structure and development of thunder-storm showers obtained on the basis of radar measurements

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1962, 27, abstract 2B204 (Tr. Ukr. n.-i. gidrometeorol. in-ta no. 26. 1961, 47-57)

TEXT: Adjusting the receiver amplification the authors obtained different boundaries of shower foci and determined the cloud-echo value Z at these boundaries. Using an empirical correlation connecting Z with the precipitation intensity I ($Z = \beta I^{\alpha}$) the appropriate precipitation intensity I was ascertained. The coefficients $\beta = 1.69$ and $\alpha = 3.27$ were found from the data of 88 cases of rain observations at Kiyev in 1958 and 1959. The ratio of the receiver's sensitivity to the power emission magnitude was controlled by

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Some data on ...

S/169/62/000/003/041/072
D228/D301

means of an echo-device fixed at a distance of 2 m from the aerial. During the observations the screen was photographed at 10 different gradations of the receiver's sensitivity (approximately every 2 - 3 db). The full section of the focus for all gradations was accomplished in 60 sec. The intervals during the photographing amounted to 10 - 15 min. Photographs of foci with clear boundaries at all sensitivity gradations were selected for analysis. The exponential dependence of the precipitation intensity on the distance to the focal center -- $I = b \times a^r$ -- is established from observations on 57 foci during 11 days with rain. Divergences from the exponential law are noted for peripheral and central parts of a focus. It is apparent from the data adduced in a table that the magnitudes of "a" and "b" vary from case to case in broad limits and have to be found separately for each focus. When considering the rate of focal development and attenuation the authors established that the area of a focus grows (during its development) or diminishes during its attenuation) linearly with time. The areas of foci enveloped by the isolines of equal precipitation intensity, also grow

Card 2/3

Some data on ...

(or diminish) linearly with time. The change in the maximum precipitation intensity at the center of a focus, too, proceeds linearly with time. /Abstracter's note: Complete translation./

Card 3/3

VOLYNETS, L.M.; LEVENKO, A.A.; MARKOVICH, M.L.; MUCHNIK, V.M.

Radar observation as a method for studying the influence on supercooled strati. Meteor. i gidrol. no.10:3-9 O '63. (MIRA 16:11)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.

ACCESSION NR: AT4018989 S/2599/63/000/036/0074/0082

AUTHOR: Markovich, M. L.; Muchnik, V. M.

TITLE: An attempt at the remote measurement of precipitation by radar

SOURCE: Kiev. Ukr. n.-i. gidrometeor, institut. Trudy*, no. 36, 1963. Voprosy* fizild atmosfery* (Problems in atmospheric physics), 74-82

TOPIC TAGS: meteorology, rainfall, rainfall measurement, weather forecasting, radar

ABSTRACT: The paper considers the results of the measurement by radar of precipitation in a given area compared with measurements using a fine rain-gauge screen. Two radars with wave lengths of 3.2 cm were used with errors reaching 29%. The reason for the error (up to 14%) in the measurement of rain intensity is given as the inaccuracy of rain measurement itself. The error drops considerably, to 5%, when larger areas are considered. It is concluded that precipitation in areas of up to 10,000 km^2 may be measured with high accuracy by radar. The connection between radar reflection and rain intensity holds true up to 50 km when the rain falls from a uniform cloud system. A higher accuracy may be attained when all factors influencing the reflecting capacity of the raindrops on the radar screen are known. It is advisable to use a directive antenna of not over 1° for

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ACCESSION NR: AT4018989

decreasing the error when measuring rains of high intensity. "In conclusion, we would like to thank L. V. Povorozhenko and Yu. S. Rud'ko for processing the radar observations." Orig. art. has: 3 figures and 7 formulas.

ASSOCIATION: Ukr. n.-i. gidrometeor. institut, Kiev (Ukrainian Hydrometeorological Institute)

SUBMITTED: 00 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: AS NO REF SOV: 005 OTHER: 001

Card 2/2

VOLYNETS, L.M.; MARKOVICH, M.L.; MUCHNIK, V.M.

Some problems in increasing the accuracy of radar measurement of amounts of precipitation. Trudy UkrNIGMI no.42:42-52 '64
(MIRA 18:1)

VOLYNETS, L.M.; MARKOVICH, M.L.; MUCHNIK, V.M.

Some characteristics of individual showers according to data of radar observations. Meteor. i gidrol. no.3:21-23 Mr '65. (MIRA 18:2)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.

L 20827-66 EWT(1)/FCC GW

ACCESSION NR: AT5017684 UR/2599/65/000/047/0051/0058

AUTHORS: Volynets, L. M.; Markovich, M. L.; Muchnik, V. M.

TITLE: Some results of measuring rainfall amounts per area by radar

SOURCE: Kiyev. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy, no. 47, 1965. Voprosy aktivnykh vozdeystviy na atmosfernyye protsessy (Problems of active influences on atmospheric processes), 51-58

TOPIC TAGS: rainfall, radar, measurement accuracy, weather station

ABSTRACT: The precision of radar measurements of rainfall in showers is examined in relation to its dependence on size of area and length of time interval between measurements. It was found that the precision increases as the area of measurements is increased. In comparing such computations with rain gage measurements at stations arranged in a network with a density of 1 per 16 km^2, the average error for an area of 81 km^2 proved to be 12%, with a maximum of 37%. For an area of 162 km^2 the corresponding values are 10 and 30%, for 324 km^2 8 and 16%, and for 648 km^2 7 and 14%. The average rainfall for the 81-km^2 area was 0.1-4.2 mm.

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L 20827-66

ACCESSION NR: AT5017684

Two methods of computing average rainfall were considered. One was based on the assumption that the rainfall intensity does not change during the time interval between measurements, and the other was based on the assumption that the intensity varies linearly with time during the interval. For 2-minute intervals between measurements, the method of computation (for rainfall per hour for the 81-km^2 area) made little difference on the results. For intervals of 4 to 10 minutes, however, it was found to be much more accurate to use the second method. This accuracy further depends on the length of the time interval. The average variation for computations with a 4-minute interval, using the second method, is 3% as compared with the 2-minute interval; the maximum is 6%. For the 6-minute interval the variance is 4% for the average, 7% for the maximum, and for the 10-minute interval the two values are 10 and 29%. It thus becomes clear that measurements should be made at intervals of 2 minutes or less. Orig. art. has: 1 figure, 3 tables, and 3 formulas.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Ukrainian Scientific Research Hydrometeorological Institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: ES

NO REF SOV: 003 OTHER: 003

Card 2/2

ACC NR: AP6022220 SOURCE CODE: UR/0362/66/002/006/0617/0629

AUTHOR: Volynets, L. M.; Markovich, M. L.; Muchnik, V. M.

ORG: Ukrainian hydrometeorological research institute (Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut)

TITLE: Results of rainfall measurements by a distance-compensated radar

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 2, no. 6, 1966, 617-629

TOPIC TAGS: radar, meteorologic radar, distance compensated signal radar, atmospheric precipitation/ARS-3 meteorologic radar

ABSTRACT: This paper discusses an improved meteorological radar with echo signal intensity compensation for the distance, and presents the results of rainfall measurements. Distance compensation is achieved by a logarithmic IF amplifier proposed by N. Kodaira (Pap.Meteor. Soc. Japan, v.10, no.2, 1959), which was incorporated into a standard ARS-3 weather radar. Compression of the dynamic correction range was added. Correction was effected between 8 and 80 km, corresponding to $21\log(R/R_0)=20db$; $R_0=8km$. Results of a series of 15 rainfall measurements are presented. The radar delivers better data, faster. Error sources are discussed and thoughts on their alleviation given. Operation of the equipment and evaluation of the data are described in detail. Orig. art. has 4 figures, 10 formulas and 6 tables.

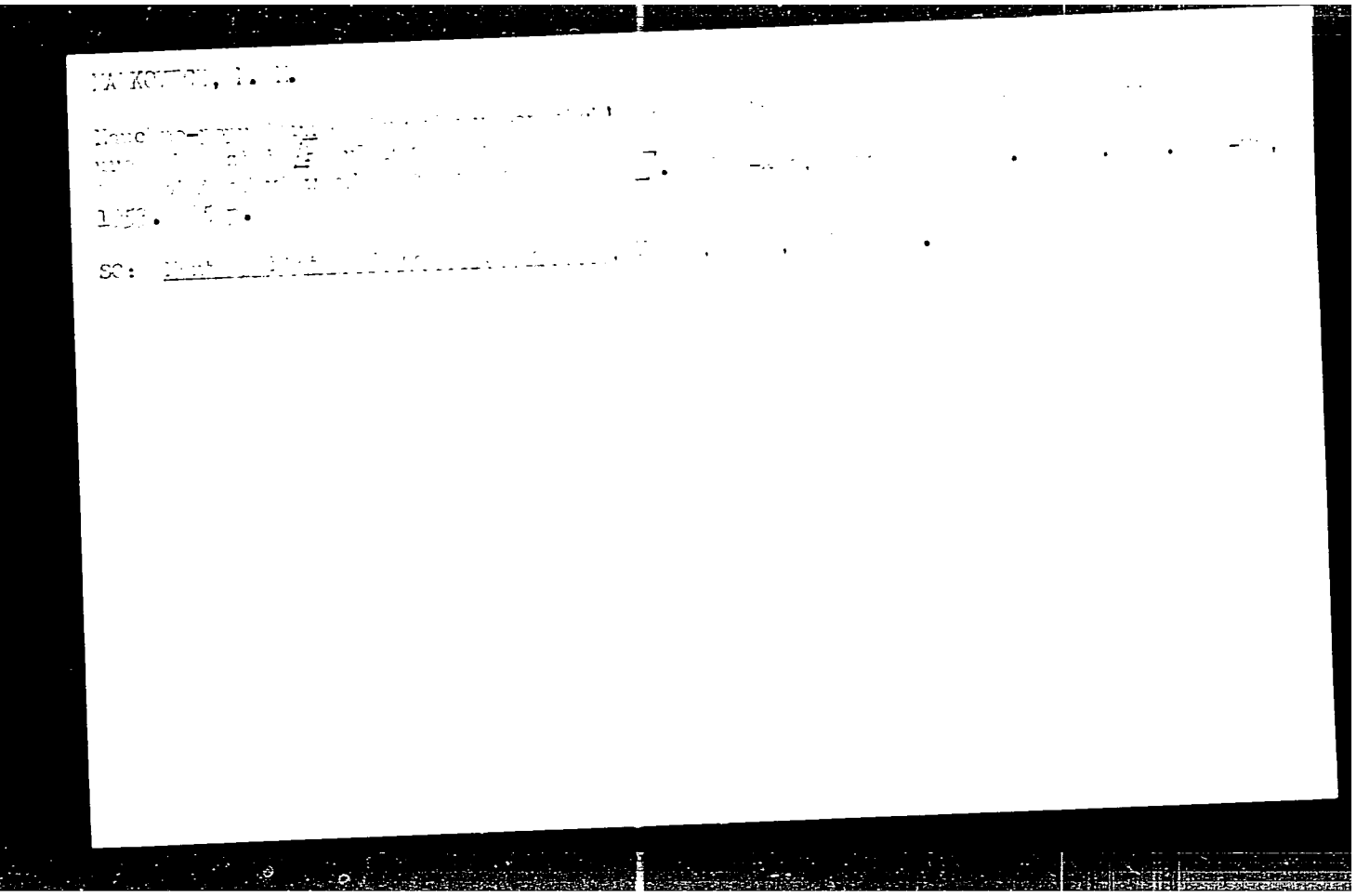
SUB CODE: 04, 17/ SUBM DATE: 10Jan66/ ORIG REF: 007/ OTH REF: 002

UDC 551.501.81

Card 1/1

MARKOVICH, Mark Mikhaylovich; GOLOVKO, Ye.V., otv.red.; CHASOVIKOVA, Z.I., tekhn.red.

[Use of solar energy in the U.S.S.R. and abroad; possibilities of the use of solar energy in Kazakhstan] Ispol'zovanie solnechnoi energii v SSSR i za rubezhom i perspektivy ee ispol'zovaniia v Kazakhstane. Alma-Ata, TSentr.in-t nauchno-tekhn.informatsii, 1959. 28 p. (MIRA 13:11)
(Solar energy)



MARKOVICH, M.M. (Alma-Ata); UVAROV, P.Ya. (Alma-Ata).

Utilization of popular scientific periodicals in the teaching of physics. (MLRA 6:8)
Fiz. v shkole 13 no.5:82-86 S-O '53.
(Physics--Study and teaching)

MARKOVICH, M. M. and KALININ, S. K.

"Development of Physics in Kazakhstan." p. 291. In Science in Kazakhstan during the Forty Years of the Soviet Regime. Alma-ata, Izd-vo AN Kazakhskoy SSR, 1957. 452p. (ed. Satpayer, K. I.)

This is a collection of articles (20) compiled by 24 authors on various aspects of scientific progress in Soviet Kazakhstan. One third of the articles also deal with the progress made in the main fields of industrial endeavor. The articles on the development of science survey the main contributions made in the respective branches by Kazakh scientists, and enumerate and describe the existing scientific institutes, organizations, and universities. A large number of scientists are mentioned and their fields of interest stated.

MARKOVICH, Mark Moiseyevich; UVAROV, Petr Yakovlevich; DROZHZHIN, Yu.N., red.; KOVALENKO, V.L., tekhn. red.

[Engineering taught in a physics class] Tekhnika na urokakh fiziki. Moskva, Gos. uchebno-pedagog. izd-vo M-va prosv. RSFSR, 1960. 164 p. (MIRA 14:6)

(Engineering--Study and teaching)

KOVALEV, Yuriy Pavlovich; MARKOVICH, Mark Mikhaylovich; NURALIYEV, R., red.; POPOVICHENKO, T., tekhn. red.

[Through the mountains in the vicinity of Alma-Ata; brief guidebook to walking tours on a day off] Po gornym okrestnostiam Alma-Aty; kratkii putevoditel' po peshekhodnym turistskim marshrutam vykhodnogo dnia. Alma-Ata, Kazgosizdat, 1963. 82 p. (MIRA 16:5)
(Alma-Ata region--Guidebooks)

SEMEVSKIY, V.N.; PANENKOV, Yu.I.; MARKOVICH, M.P.

Computing the resistance and stability of reinforced concrete supporting walls. Zap. LGI 49 no.1:60-66 '64. (MIRA 18:8)

MARKOVICH, Mikhail Parmenovich; LIVSHITS, Ya.D., prof., retsenzent; SLAVIN, D.S., otv. red.; CHECHKOV, L.V., red. izd-va; MAKSIMOVA, V.V., tekhn. red.

[Structural elements and construction work at the surface of mines] Stroitel'nye konstruktsii i proizvodstvo stroitel'nykh rabot na poverkhnosti shakht. Moskva, Gosgortekhizdat, 1962. 429 p. (MIRA 15:12)

1. Zaveduyushchiy kafedroy stroitel'nykh konstruktsiy i mostov Kiyevskogo avtodorozhnogo instituta (for Livshits).
(Mine buildings)

PLAKSIN, Yakov Grigor'yevich; FLEKKEL' Arkadiy Il'ich; NIKITENKO, Vasiliy Rodionovich; NOVIKOV, Grigoriy Porfir'yevich; SHTODA, Ivan Ivanovich; MARKOVICH,M.P.,kand.tekhn.nauk,dots., retsenzent; GRIGOR, V.I.,dots.,retsenzent; MITROKHIN,S.S., retsenzent; SLAVIN,D.S.,otv.red.; CHERNEGOVA,E.N.,red.izd-va; MAKSIMOVA,V.V.,tekhn.red.

[Principles of building and mining-engineering structures] Osnovy stroitel'nogo dela i gornoinzhenernye sooruzheniia. Izd.2., dop. i perer. [By] IA.G.Plaksin i dr. Moskva, Gosgortekhizdat, 1963. 463 p. (MIRA 16:12)
(Building) (Mine buildings)

MARKOVICH, Moisey Yefimovich; BEKMAN, V.V., inzh., retsenzent; BELETSKIY, G.A., insh., red.; DUDUSOVA, G.A., red.izd-va; SPERANSKAYA, O.V., tekhn.red.

[D-4 bicycle motor] Velosipednyi dvigatel' D4. Moskva, Gos. nauchno-tekhn.izd-vo mashinostr.lit-ry, 1959. 92 p. (MIRA 12:10)

(Bicycles and tricycles) (Gas and oil engines)

MARKOVICH, M.Z.

Surface temperature of the rotating nuclei of comets. Biul. Stal. astron. obser. no. 20:29-36 '57. (MIRA 11:8)
(Comets)

MARKOVICH, M.Z.

Determining the course of the temperature of a comet nucleus by the brightness curve. Astron.tsir. no.197:2-4 N '58.
(MIRA 12:7)

1. Institut astrofiziki AN Tadzhikskoy SSR.
(Comets)

MARKOVICH, M.Z.

Heat conductivity of the surface layer of a comet's nucleus.
Biul.Inst.astrofiz.AN Tadzh.SSR no.25:3-14 '59.
(MIRA 13:5)

(Comets)

S/[illegible]/[illegible]/[illegible]/[illegible]
A001/A101

3,1550

AUTHOR: Markovich, M.Z

TITLE: Temperature of cometary nuclei and changes in the brightness of the comets with the heliocentric distance

PERIODICAL: Referativnyy zhurnal Astronomiya i Geodeziya, no. 3, 19[illegible], 63, abstract 3A571 ("Byul. Inst. astrofiz.", AN TadzhSSR, 1959, nr 25, 25-[illegible]

TEXT: Temperature of cometary nucleus is calculated by numerical integration of conductivity equation as applied to various models of the nucleus. The results are approximated by an analytical function which is used for discussing the mechanism of evolving gases from the nucleus and calculating the dependence of cometary brightness. The theory is applied to observations of the Halley comet 1910 II. There are 20 references.

[Abstracter's note: Complete translation]

Card 1/1

MARKOVICH, M. Z. Cand Phys-Math Sci -- "Temperature of comet nuclei." Kiev, 1961 (Min of Higher and Secondary Specialized Education UkSSR. Kiev Order of Lenin State Univ im T. G. Shevchenko). (KL, 4-61, 184)

MARKOVICH, N.Z.

Some characteristic changes in the brilliance of Encke-Baklund's comet. Izv. Otd. geol.-khim. i tekh. nauk AN Tadzh. SSR No.1:15-20 '61. (MIRA 14:9)

1. Institut astrofiziki AN Tadzhikskoy SSR.
(Encke's comet)

4h255

S/035/62/000/012/019/064
A001/A101

3.1550

AUTHOR: Markovich, M. Z.

TITLE: The temperature of nuclei of comets with large aphelion distances

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 12, 1962, 68, abstract 12A406 ("Byul. Komis. po kometam i meteoram Astron. soveta AN SSSR, 1961, no. 6, 25 - 31)

TEXT: To determine temperature of cometary nuclei, the author solves the equation of heat conductivity in the form:

$$\rho c \frac{\partial T}{\partial t} = \frac{\partial}{\partial x} \left(K \frac{\partial T}{\partial x} \right),$$

where K is coefficient of heat conductivity, ρ is density, c is specific heat capacity varying linearly with temperature. Neglecting losses due to radiation and evaporation for nuclei of comets with large aphelion distances, the author calculates the surface temperature of the nucleus as a function of heliocentric distance. Graphical relations T(r) are presented for two models of nuclei moving

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The temperature of nuclei of comets with...

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in the orbit of the Halley comet: 1) The nucleus consisting of ice of H_2O, 2) the nucleus represents a conglomerate of ices of H_2O and high-smelting meteoric particles of SiO_2. An analogous relation T(r) was found also for stone and iron meteorites. There are 7 references.

L. Marochnik

[Abstracter's note: Complete translation]

Card 2/2

MARKOVICH, M.V.

Letter to the editor. Biul. Inst. astrofiz. AN Tadzh. [illegible]
3 of cover '62.

MARKOVICH, N. A.

"Effect of Clinical Treatment of the Population as a Means of the Prophylaxis of Cancer of the Mouth," Stomatologiya, No. 2, 1948. Leningrad, [illegible].

EXCERPTA MEDICA Sec 8 Vol 12/7 Neurology July 59

3309. THE EFFECT OF CORTISONE ON AN EXPERIMENTAL TRAUMATIC CICATRIX OF THE BRAIN (Russian text) - Markovich N., Voinescu S. and Markovich G. - VOPR.NEIROKHIR. 1958, 2 (15-20) Illus. 6

With the aim of determining the effect of cortisone (in parenteral and local administration) on the process of brain cicatrization, experimental morphological and histochemical investigations were carried out. An incision in the brain was made in 14 dogs, which were divided into 2 groups: in the first group the animals were killed after 3 days, in the second 2 months after the operation. In every group (in the control animals also) there were animals which received the cortisone i.m. locally, before and after the operation. It was observed that cortisone favourably modifies the brain scar. The effect was especially evident in those animals which received the hormone after the operation and were killed 2 months later. Cortisone produces a marked diminution of the connective component of the scar, a decrease of glial proliferation and inflammatory infiltrations. It prevents cortico-meningeal adhesions as well as sclerosis of vessels in the scar region. The activity of alkaline phosphatases, which was intensified in the scar, diminished after the administration of the hormone. The local and preoperative administration of cortisone has a much less pronounced effect.

ARSENI, K.; MARKOVICH, N.; P'YETRARU, N. (Bukharest)

Closure of skull defects. Khirurgiia 35 no. 5:84-87 My '59.
(MIRA 13:10)

(SKULL--SURGERY)

MARKOVICH, N. [Markovici, N.]; MARKOVICH, G. [Markovici, G.] (Bukharest)

Morphological basis of epilepsy. Arkh. pat. 26 no.3:63-68 '64.
(MIRA 18:12)

1. Institut nevrologii (direktor - akademik A. Kreyndler) imeni I.P. Pavlova akademii Rumynskoy Narodnoy Respubliki.

MARKOVITCH N.G. Burdenko Inst., Moscow The approach to the anterior horn of the lateral ventricle (Anatomical relationship between the skull and the cerebrum) (Russian text) Vop. Nejrokhir. 1951, 5 (27-32) Illus. 2

For the operator there are 2 possibilities of exposure when dealing with the anterior horn: an upper and a lower one. Both are situated along the coronary suture or 2 cm. in front of it. The upper approach exposes the middle third of the middle frontal convolution, and is considered as superior to the lower one whose relationship to the underlying regions, i.e. the pars triangularis or opercularis of the inferior frontal convolution, is extremely inconstant, and may lead even to interference with the anterior part of the sylvian fissure and its vessels.

Heppner - Graz

SO: Excerpta Medica, Section VIII, Vol 5, No 10

MARKOVICH, Nikolay Mikhaylovich; BORISOV, Igor' Fedorovich; SHAVKUN, Boris Ivanovich; VISHNEVETSKIY, G.R., otv. red.; LAVRENT'YEVA, L.G., tekhn. red.

[Practice of introducing and using combination drills. The BU-1]Opyt vnedreniia i ekspluatatsii buril'noi vrashchatel'no-udarnoi ustanovki. BU-1. Moskva, TSentr. in-t tekhn. informatsii ugol'noi promyshl., 1962. 27 p. (MIRA 16:4)
(Boring machinery)

MARKOVICH, Nikolay Mikhaylovich; MARSHEV, Valeriy Samuilovich; ZVANSKIY, Grigoriy Yefimovich; MEDVEDEV, I.F., kand. tekhn. nauk, retsenzent

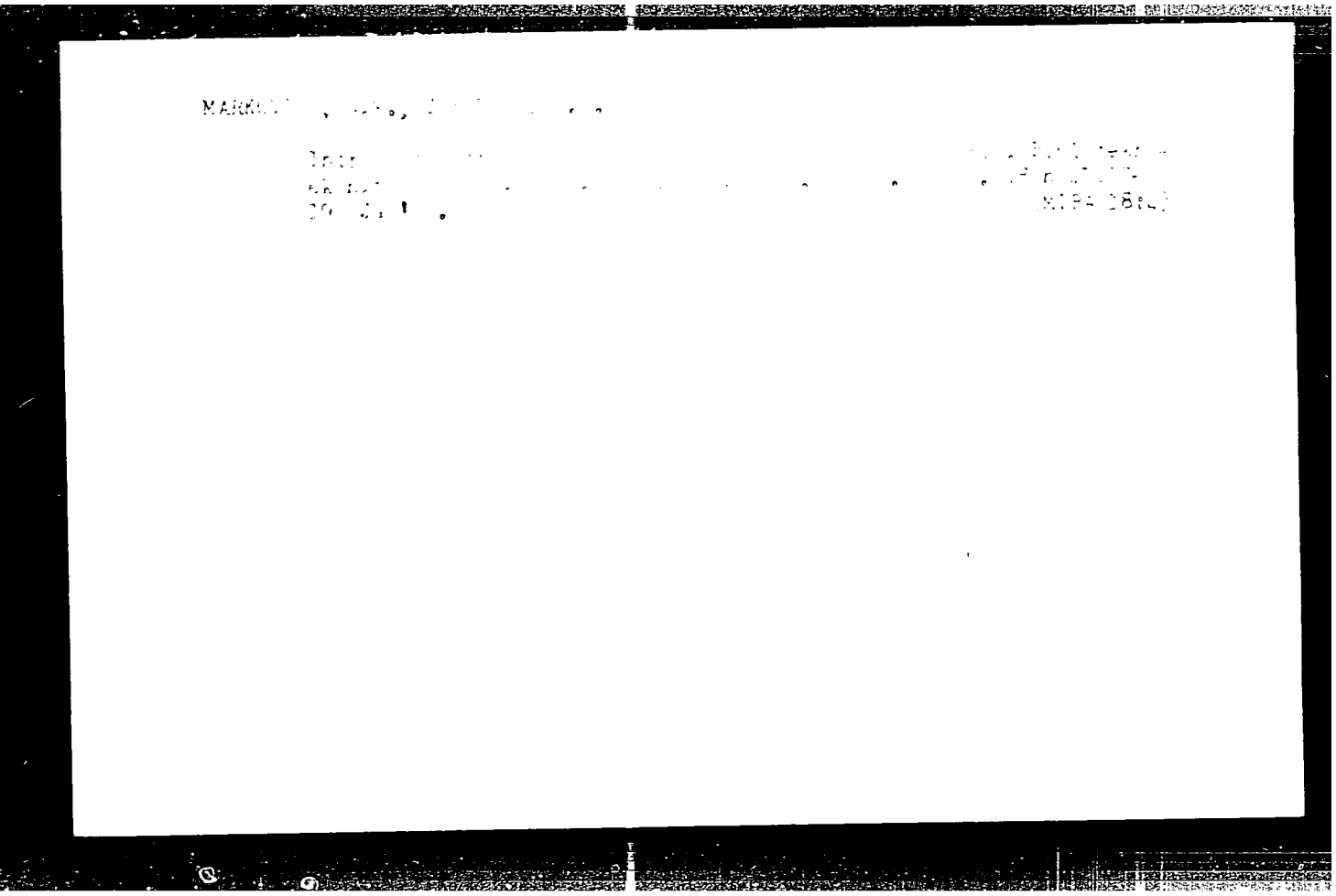
[Rotary percussion machinery for drilling holes] Vrashchatel'no-udarnye ustanovki dlia bureniia shpurov. Moskva, Izd-vo "Nedra," 1964. 157 p. (MIRA 17:6)

MARKOVICH, N.M.; YAKOVLEV, V.G.

Self-propelled boring machine. Gor. zhur. no.8:77 Ag '64.
(MIRA 17:10)

IVANSKIY, G.Ye.; MARKOVICH, N.M.

The BUR-2 automotive [illegible]. Biul.tekh.-ekon.inform. Gos.nauch.-issl.inst.nauch.i tekh.inform. no.10:56-58 O '64.
(MIRA 18:4)



MARKOVICH, N. Ya.

MARKOVICH, N. Ya - "Biology of the Spring Water Malarial Mosquito." Sub 11 Apr ..., Moscow Order of Lenin State U imeni M. V. Lomonosov. (Dissertation for the Degree of Candidate in Biological Sciences).

SO: Vechernaya Moskva January-December 1952

MARKOVICH, N.Ya.

Copulation of Aedes diantheus when not in flight. Med.paraz. i paraz. bol.supplement to no.1:54 '57. (MIRA 11:1)

1. Iz sanitarno-epidemiologicheskoy stantsii Moselektrotyagstroya.
(MOSQUITOES)

RAKHMANOVA, P.I.; ALMAZOVA, V.V.; MARKOVICH, N.Ya.; KRYLOV, R.S.

System of successive stages in the testing of repellents and their justification. Med.paraz.i paraz.bol. 29 no.2:216-219 '60. (MIRA 13:12)

(INSECT BAITS AND REPELLENTS)

TIMOFEYEVA, L.V.; MITROFANOV, A.M.; MARKOVICH, N.Ya.; MURAV'YEVA, T.V.; SHVAN'KOV, M.Ye.; TUPITSYN, L.F.

Successful results in controlling bloodsucking black flies (Diptera, Simuliidae) by treating the breeding grounds; preliminary report. Med.paraz.i paraz. bol. no.1:3-9 '62. (MIRA 15:5)

1. Iz entomologicheskogo otdela (zav. - prof. V.N. Beklemishev) i otdela entomotoksikologii (zav. - prof. V.A. Nabakov) Instituta meditsinskoy parazitologii i tropicheskoy meditsiny imeni Ye.I. Martsinovskogo (dir. - prof. P.G. Sergiyev) Ministerstva zdravookhraneniya SSSR.
(BLACK FLIES--EXTERMINATION) (DDT (INSECTICIDE))

[illegible]A, T.V.; [illegible], I. Ya.; [illegible], L.V.

Migration of [illegible] larvae (Diptera, Simuliidae). Med. parazit. i parazit. bol. 33 no.4:188-195 JI-Ag '64 (MIRA 18:1)

1. Otdel entomologii (zav. - prof. V.A. Dogel') Leningradskogo ordena Lenina gosudarstvennogo universiteta imeni A.A. Zhdanova (dekan - prof. A.A. Sergiyev) i Laboratoriya parazitologii [illegible].

MARKOVICH, N.Ya.; SHIPITSINA, N.K.

Basic problems of the entomological control in the period of elimination of malaria in the U. S. S. R. Observations on the Anopheles populations following the cessation of the use of insecticides in buildings. Report No.1. Med. paraz. i paraz. bol. 34 no.1:7-11 Ja-F '65. (MIRA 18:8)

1. Otdel entomologii Instituta meditsinskoy parazitologii i tropicheskoy meditsiny imeni Ye.I.Martsinovskogo Ministerstva zdravookhraneniya SSSR, Moskva.

MOISEYENKO, A.I.; MARKOVICH, P.N.

Stop valve for a spray gun. Prom.energ. 11 no.8:23 Ag. '56.
(Spraying and dusting equipment) (Valves) (MLRA 9:11)

SIMICH, S. [Simic, S.]; RAKOVICH, V. [Rakovic, V.]; MARKOVICH, R. [Markovic, R.] (Belgrad, Yugoslaviya)

Effect of vegetable fats and solid hydrogenated vegetable fat on the content of cholesterol, phospholipids, and total lipids in the blood serum of various population groups. Vop.pit. 20 no.3:28-33 My-Je '61. (MIRA 14:6)
(CHOLESTEROL) (LIPIDS) (FATS)

MARKOVICH, R.S.

Local novocaine and bencaine infiltration block in the treatment of circumscribed chronic pruritic dermatoses. Vest. derm. i ven. 36 no.10:53-55 O'62 (MIRA 16:11)

1. Iz kafedry dermatologii (zav. - dotsent L.P.Nurmand) Tartuskogo gosudarstvennogo universiteta i Paydeskoy rayonnoy bol'nitsy (glavnyy vrach B. Pyder).

YUGOSLAVIA/Cultivated Plants. Commercial. Oil-Bearing. Sugars. M

Abs Jour: Ref Zhur-Biol., No 5, 1958, 20451.

Author : S. Markovich
Inst : Not given.
Title : The Side Dressing of Tobacco Seedlings with the Combined Fertilizer $NH_4NO_3 \cdot CaCO_3$. (Podkormka tabachnoy rassady kombinirovannym udobreniyem $NH_4NO_3.CaCO_3$).

Orig Pub: Tutun, 1957, 7, No 2, 45-53.

Abstract: No abstract.

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MARKOVICH, V.

MARKOVICH, V.

Vegetable Gardening

Successes of vegetable growing [illegible].
Kolkh. proiz. 12 No. [illegible], 1952.

Monthly List of Russian Accessions, Library of Congress October 195[illegible]

GORON, I.Ye.; ARUTYUNOV, M.G.; MARKOVICH, V.D.; PATRUNOV, V.G.; TRAUBENBERG, V.P.

High-speed ferrographic recording of digital data. Elektrosviaz' 16 no.12:26-32 D '62. (MIRA 16:1)

(Telecommunication)
(Printing machinery and supplies)

41915

S/191/62/000/011/009/019
B101/B186

15 9500

AUTHORS: Li, P. Z., Lukovenko, T. M., Yakubovich, E. I., Shagova, E. A., Markovich, V. E.

TITLE: Determination of the linear expansion coefficient of glass plastics

PERIODICAL: Plasticheskiye massy, no. 11, 1962, 36-40

TEXT: The linear expansion coefficient α of a glass textolite from phenol formaldehyde resin reinforced by 65-70% glass fabric was determined in the temperature range 20-400°C. The resin combinations of 70% ЭД-6 (ED-6) epoxy resin and 30% phenol formaldehyde resin, phenol formaldehyde resin with polyvinyl butyral 1:1, or of phenol formaldehyde resin with furfural acetone resin 1:1, tested for comparison, showed no essential differences. The relative elongation $\Delta l/l_0$ of glass textolites was not found to be a linear function of temperature. α for 30% resin content lies near the α for glass fiber ($\sim 5 \cdot 10^{-6}/°C$), it approaches that of iron for 45-55% resin content, and that of aluminum for 70% resin content, whereas α for pure resin is $\sim 80 \cdot 10^{-6}/°C$. Glass textolite shaped in

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